General

Title

Adult trauma care: percentage of patients age 18 years and older admitted to hospital with an injury diagnosis from a blunt force mechanism and documented assessment of the cervical, thoracic and lumbar spine and decision to continue or discontinue spine immobilization within 36 hours of admission to hospital.

Source(s)

Guide to quality indicators in adult trauma care. Version 3. Calgary (AB): Quality of Trauma in Adult Care, University of Calgary; 2013 Jan 29. 129 p. [111 references]

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of patients age 18 years and older admitted to hospital with an injury diagnosis from a blunt force mechanism and documented assessment of the cervical, thoracic and lumbar spine and decision to continue or discontinue spine immobilization within 36 hours of admission to hospital (per 100 patients).

Rationale

Each year, injuries affect 700 million people worldwide and result in more than five million deaths. In many countries, injuries are the leading cause of death among those under the age of 45 years. The human and societal burden is even greater with many survivors never returning to school, work or their "regular" lives.

Health care services provide patients with treatment for what is a major cause of morbidity and death. Yet medical errors and substandard care threaten trauma care. Half of all patients with major traumatic injuries do not receive recommended care, medical errors are common in critically ill trauma patients and preventable trauma deaths in hospital are widely reported. The World Health Organization (WHO), professional trauma organizations (e.g., American College of Surgeons [ACS], Trauma Association of Canada and Royal Australasian College of Surgeons) and accreditation bodies have promoted efforts to improve the quality of care delivered to injured patients. However, before the quality of injury care can be improved, it needs to be measured using reliable and valid measures of health care quality.

These indicators can be used to assess patient safety, and to evaluate and improve quality of care by incorporating these measures into local, regional or national quality improvement efforts. Implementing a consistent approach to measurement (same indicators, same definitions, same data elements, same reporting format) would provide institutions with reliable performance data that is necessary for surveillance (e.g., tertiary survey completion), to track local problems (e.g., adverse events – specifically missed injuries), evaluate the effects of interventions or program changes (e.g., tertiary survey protocol) and provide comparisons across centers (e.g., benchmarking adverse events using programs such as the ACS's Trauma Quality Improvement Program). Well-designed, carefully evaluated and appropriately implemented quality indicators (QIs) may be essential tools for guiding efforts to improve health and healthcare.

This indicator is intended to monitor whether spine evaluation and decision making regarding immobilization is performed in a timely fashion.

Evidence for Rationale

Guide to quality indicators in adult trauma care. Version 3. Calgary (AB): Quality of Trauma in Adult Care, University of Calgary; 2013 Jan 29. 129 p. [111 references]

Primary Health Components

Trauma care; injury; blunt force mechanism; spine evaluation; spine immobilization

Denominator Description

All patients age 18 years and older admitted to hospital with an injury diagnosis from a blunt force mechanism

Numerator Description

All patients age 18 years and older admitted to hospital with an injury diagnosis from a blunt force mechanism AND documented assessment of the cervical, thoracic and lumbar spine AND decision to continue OR discontinue spine immobilization within 36 hours of admission to hospital (see the related "Numerator Inclusions/Exclusions")

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and

organizational sciences

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Two studies demonstrated that the implementation of a trauma quality improvement program that included the quality indicator was associated with reduced hospital mortality (Chadbunchachai et al., 2001; Chadbunchachai et al., 2003). The majority of the studies recommended that clearance be performed within 72 hours of admission to minimize immobilization associated complications (Albrecht et al., 2001; "Cervical spine," 2009), although mortality wasn't reduced with earlier clearance (Griffen et al., 2003; Schinkel et al., 2006). Some studies recommended the use of helical CT scan to evaluate of the cervical spine (Barba et al., 2001; Brown et al., 2005).

Evidence for Additional Information Supporting Need for the Measure

Albrecht RM, Kingsley D, Schermer CR, Demarest GB, Benzel EC, Hart BL. Evaluation of cervical spine in intensive care patients following blunt trauma. World J Surg. 2001 Aug;25(8):1089-96. PubMed

Barba CA, Taggert J, Morgan AS, Guerra J, Bernstein B, Lorenzo M, Gershon A, Epstein N. A new cervical spine clearance protocol using computed tomography. J Trauma. 2001 Oct;51(4):652-6; discussion 656-7. PubMed

Brown CV, Antevil JL, Sise MJ, Sack DI. Spiral computed tomography for the diagnosis of cervical, thoracic, and lumbar spine fractures: its time has come. J Trauma. 2005 May;58(5):890-5; discussion 895-6. PubMed

Cervical spine clearance. Orlando (FL): Orlando Regional Medical Center (ORMC); 2009 Oct 24. 7 p.

Chadbunchachai W, Saranrittichai S, Sriwiwat S, Chumsri J, Kulleab S, Jaikwang P. Study on performance following Key Performance Indicators for trauma care: Khon Kaen Hospital 2000. J Med Assoc Thai. 2003 Jan;86(1):1-7. PubMed

Chadbunchachai W, Sriwiwat S, Kulleab S, Saranrittichai S, Chumsri J, Jaikwang P. The comparative study for quality of trauma treatment before and after the revision of trauma audit filter, Khon Kaen hospital 1998. J Med Assoc Thai. 2001 Jun;84(6):782-90. PubMed

Griffen MM, Frykberg ER, Kerwin AJ, Schinco MA, Tepas JJ, Rowe K, Abboud J. Radiographic clearance of blunt cervical spine injury: plain radiograph or computed tomography scan?. J Trauma. 2003 Aug;55(2):222-6; discussion 226-7. PubMed

Schinkel C, Frangen TM, Kmetic A, Andress HJ, Muhr G, German Trauma Registry. Timing of thoracic spine stabilization in trauma patients: impact on clinical course and outcome. J Trauma. 2006 Jul;61(1):156-60; discussion 160. PubMed

Extent of Measure Testing

Using a modification of the RAND/University of California, Los Angeles (UCLA) Appropriateness Methodology, a panel of 19 injury and quality of care experts serially rated and revised quality indicators identified from a systematic review of the literature and international audit of trauma center quality improvement practices. The quality indicators developed by the panel were sent to 133 verified trauma

centers in the United States, Canada, Australia, and New Zealand for evaluation.

A total of 84 quality indicators were rated and revised by the expert panel over 4 rounds of review producing 31 quality indicators of structure (n=5), process (n=21), and outcome (n=5), designed to assess the safety (n=8), effectiveness (n=17), efficiency (n=6), timeliness (n=16), equity (n=2), and patient-centeredness (n=1) of injury care spanning prehospital (n=8), hospital (n=19), and posthospital (n=2) care and secondary injury prevention (n=1). A total of 101 trauma centers (76% response rate) rated the indicators (1=strong disagreement, 9=strong agreement) as targeting important health improvements (median score 9, interquartile range [IQR] 8 to 9), easy to interpret (median score 8, IQR 8 to 9), easy to implement (median score 8, IQR 7 to 8), and globally good indicators (median score 8, IQR 8 to 9).

Thirty-one evidence-informed quality indicators of adult injury care were developed, shown to have content validity, and can be used as performance measures to guide injury care quality improvement practices.

Trauma centers rated the indicator "percentage of patients age 18 years and older admitted to hospital with an injury diagnosis from a blunt force mechanism and documented assessment of the cervical, thoracic and lumbar spine and decision to continue or discontinue spine immobilization within 36 hours of admission to hospital" as targeting important health improvements (median score 9, IQR 7 to 9), easy to interpret (median score 8, IQR 7 to 9), easy to implement (median score 8, IQR 6 to 9), and globally a good indicator (median score 8, IQR 7 to 9).

Evidence for Extent of Measure Testing

Santana MJ, Stelfox HT, Trauma Quality Indicator Consensus Panel. Development and evaluation of evidence-informed quality indicators for adult injury care. Ann Surg. 2014 Jan;259(1):186-92. [35 references] PubMed

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Hospital Inpatient

Intensive Care Units

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Unspecified

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Making Care Safer
Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Safety

Timeliness

Data Collection for the Measure

Case Finding Period

Unspecified

Denominator Sampling Frame

Does not apply to this measure

Denominator (Index) Event or Characteristic

Clinical Condition

Institutionalization

Patient/Individual (Consumer) Characteristic

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions
All patients age 18 years and older admitted to hospital with an injury diagnosis from a blunt force mechanism

Exclusions
Unspecified

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions
All patients age 18 years and older admitted to hospital with an injury diagnosis from a blunt force mechanism AND documented assessment of the cervical, thoracic and lumbar spine AND decision to continue OR discontinue spine immobilization within 36 hours of admission to hospital

Note: Documented decision making regarding spine immobilization within 36 hours could include any of the following: 1) decision to discontinue all precautions, 2) decision to continue all precautions or 3) decision to discontinue some precautions, but continue others (e.g., discontinue thoracic and lumbar spine precautions, but continue cervical spine immobilization with a collar).

Exclusions
Unspecified

Numerator Search Strategy

Institutionalization

Data Source

Paper medical record

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a higher score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Identifying Information

Original Title

Spine evaluation.

Measure Collection Name

Quality Indicators in Adult Trauma Care

Measure Set Name

Hospital Indicators

Submitter

Quality of Trauma in Adult Care (QTAC) Team, University of Calgary - Academic Institution

Developer

Quality of Trauma in Adult Care (QTAC) Team, University of Calgary - Academic Institution

Funding Source(s)

The project was supported by a Partnerships in Health System Improvement Grant (PHE-91429) from the Canadian Institutes of Health Research and Alberta Innovates Health Solutions. Funding sources had no role in the design, conduct, or reporting of this study.

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Financial Disclosures/Other Potential Conflicts of Interest

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Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2013 Jan

Measure Maintenance

Unspecified

Date of Next Anticipated Revision

Unspecified

Measure Status

This is the current release of the measure.

Measure Availability

Source available from the Quality of Trauma in Adult Care (QTAC) Web site .

This work is also available from the Annals of Surgery Web site : Santana MJ, Stelfox HT, Trauma Quality Indicator Consensus Panel. Development and evaluation of evidence-informed quality indicators for adult injury care. Ann Surg. 2014 Jan;259(1):186-92.

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NQMC Status

This NQMC summary was completed by ECRI Institute on May 11, 2015. The information was verified by the measure developer on July 13, 2015.

Copyright Statement

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Production

Source(s)

Guide to quality indicators in adult trauma care. Version 3. Calgary (AB): Quality of Trauma in Adult Care, University of Calgary; 2013 Jan 29. 129 p. [111 references]

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